CLAIMS

1. A poly(arylene ether) polymer including polymer repeat units of the following structure:

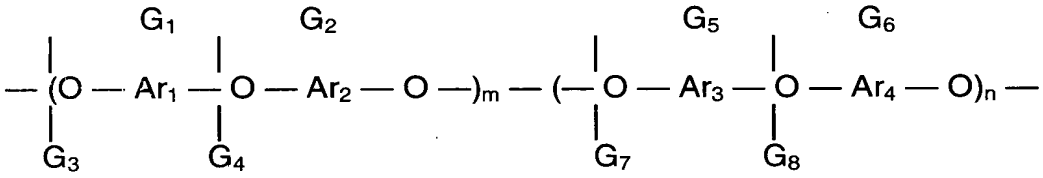
$$-(O-Ar_1-O-Ar_2-O-)_m-(-O-Ar_3-O-Ar_4-O)_n-$$

where Ar_1, Ar_2, Ar_3, and Ar_4 are identical or different aryl radicals, m is 0.05 to 0.95, n is 1-m, and at least one of the aryl radicals is grafted to at least one hydroxyalkyl group.

2. The polymer of claim 1, wherein one of the aryl radicals of the polymer repeat units is grafted to one hydroxyalkyl group.

3. The polymer of claim 1, wherein at least one of the aryl radicals of the polymer repeat units is grafted to more than one hydroxyalkyl group.

4. The polymer of claim 1, wherein the polymer repeat units have the following structure:



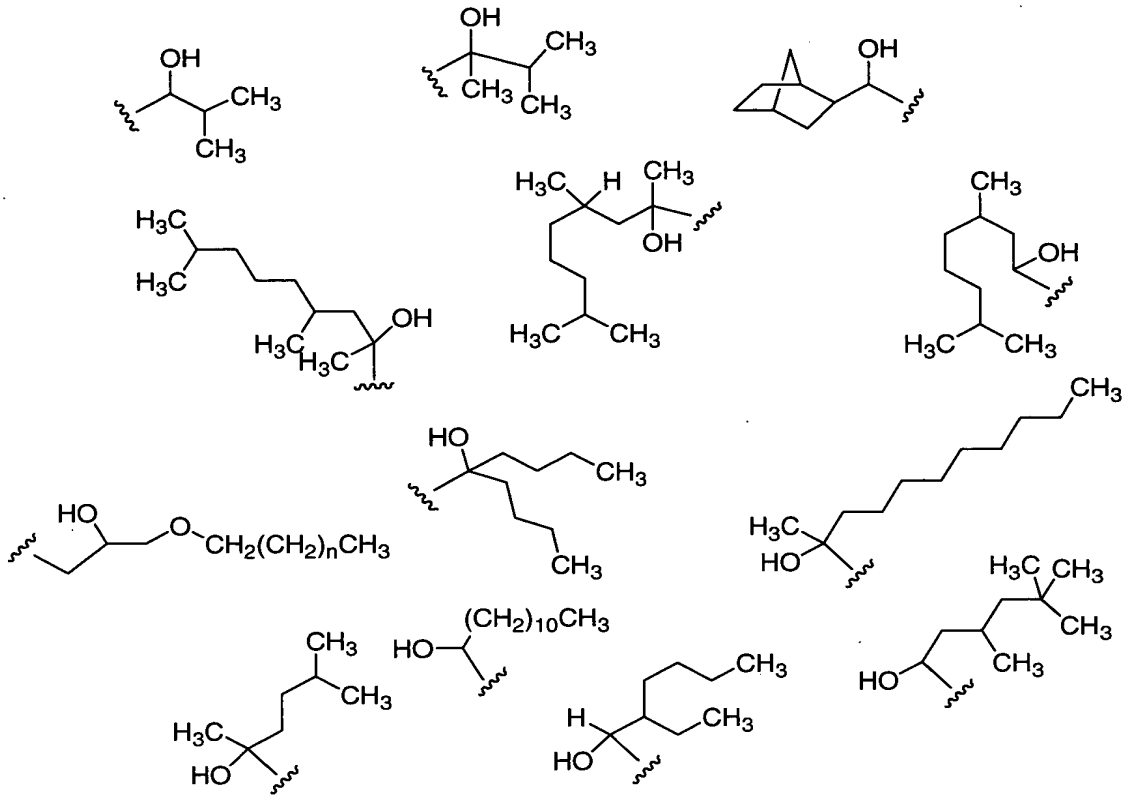
where G_1, G_2, G_3, G_4, G_5, G_6, G_7 and G_8 are identical or different species of the at least one hydroxyalkyl group.

5. The polymer of claim 1, wherein an average number of hydroxyalkyl groups per polymer repeat unit is 0.01 to 8.0.

6. The polymer of claim 5, wherein the average number of hydroxyalkyl groups per polymer repeat unit is 0.01 to 4.0.

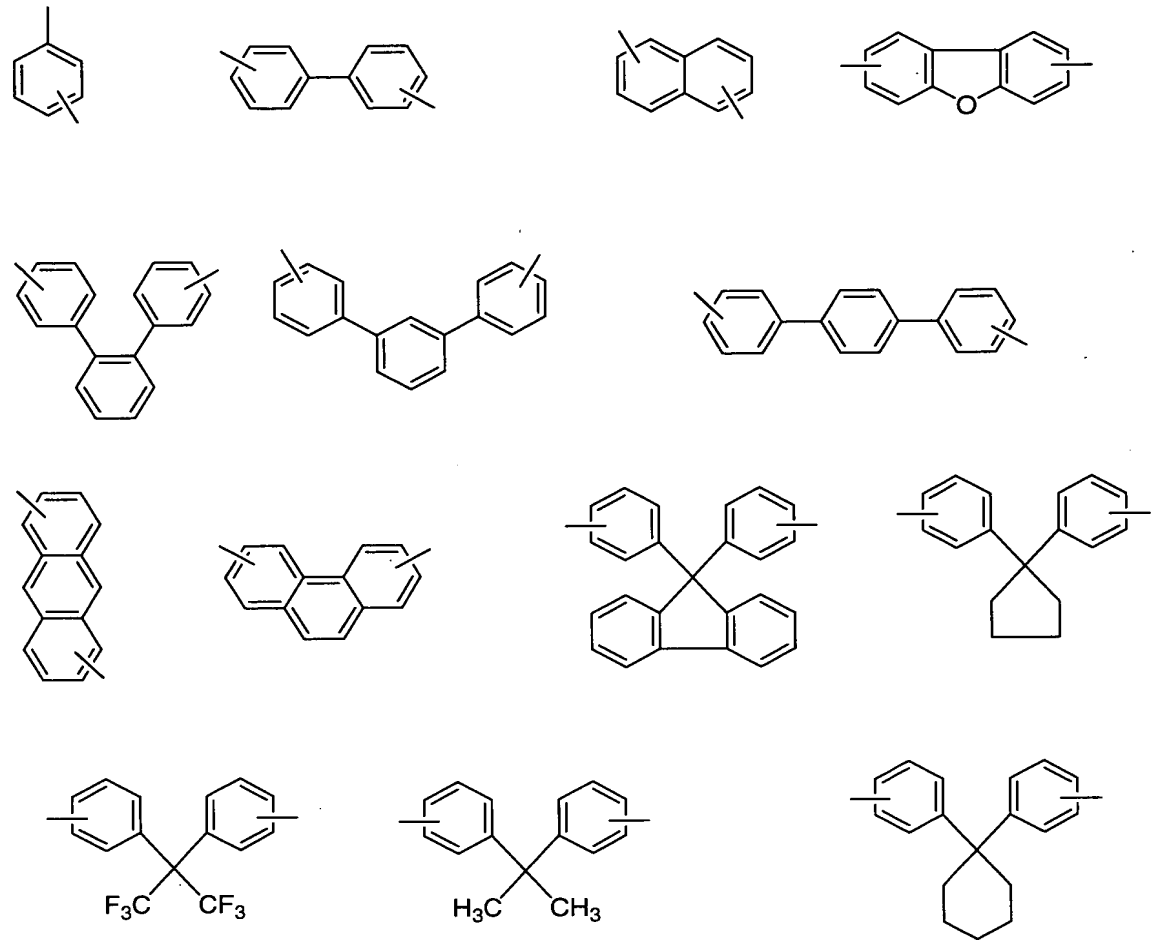
7. The polymer of claim 5, wherein the average number of hydroxyalkyl groups per polymer repeat unit is 0.25 to 1.0.

8. The polymer of claim 5, wherein the at least one hydroxyalkyl group is selected from the group consisting of:



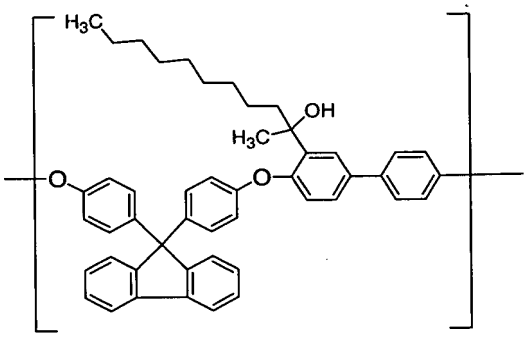
9. The polymer of claim 5, wherein the at least one hydroxyalkyl group is 2-undecanol.

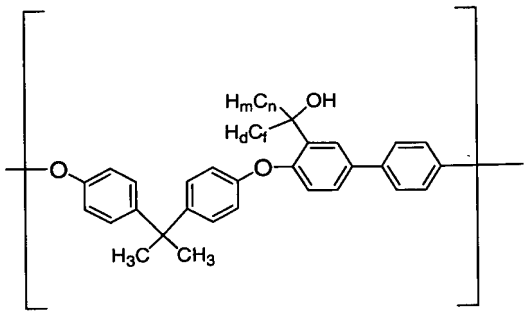
10. The polymer of claim 5, wherein the aryl radicals are independently selected from the group consisting of:



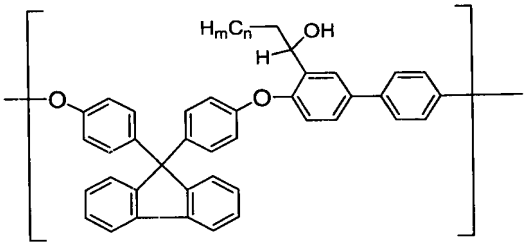
11. The polymer of claim 5, wherein at least one of the aryl radicals is selected from the group consisting of 9,9-bis(4-hydroxyphenyl)-fluorene, 2,2-diphenylhexafluoropropene and 2,2-diphenylpropene.

12. The polymer of claim 5, wherein the polymer repeat units are independently selected from the group consisting of:

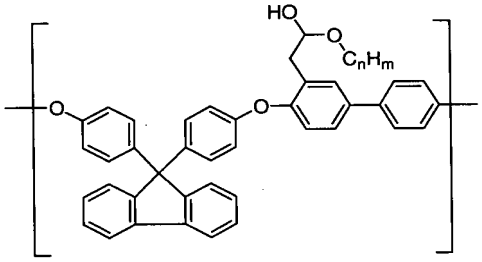




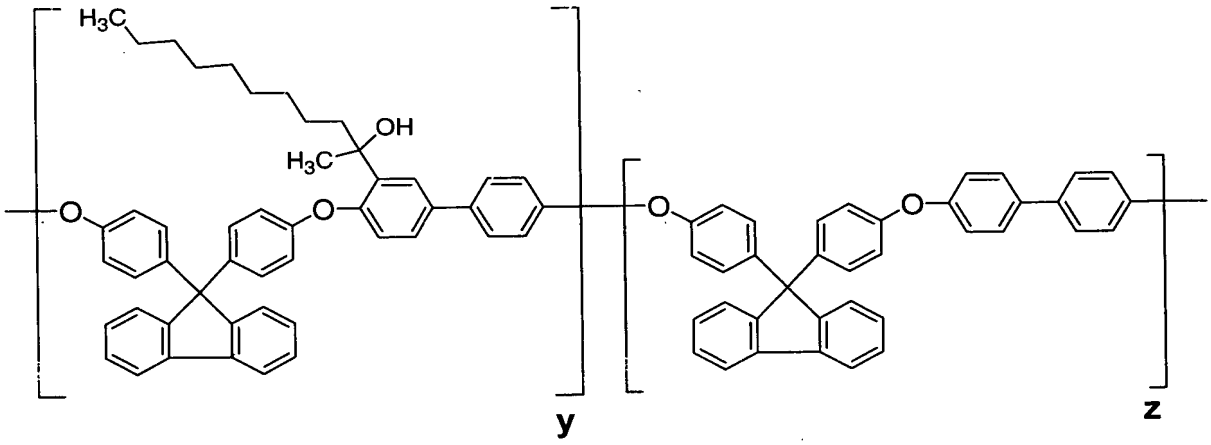
Where d,f m, and n are integers and m=4n+1 and d=4f+1



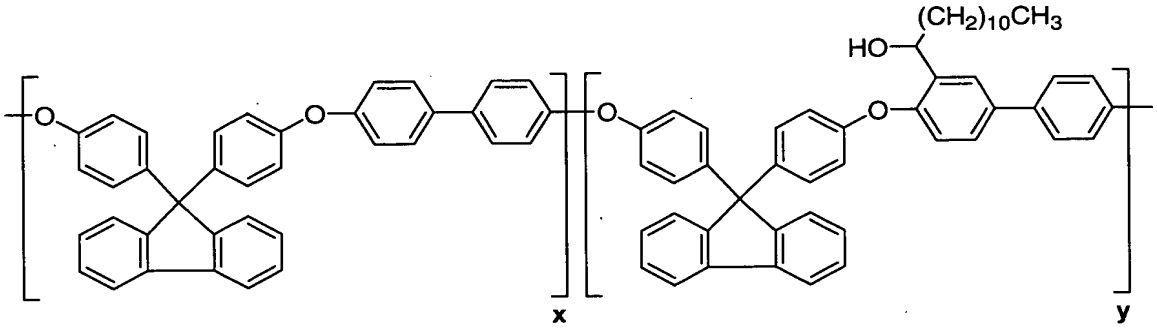
Where m and n are integers and m=4n+1



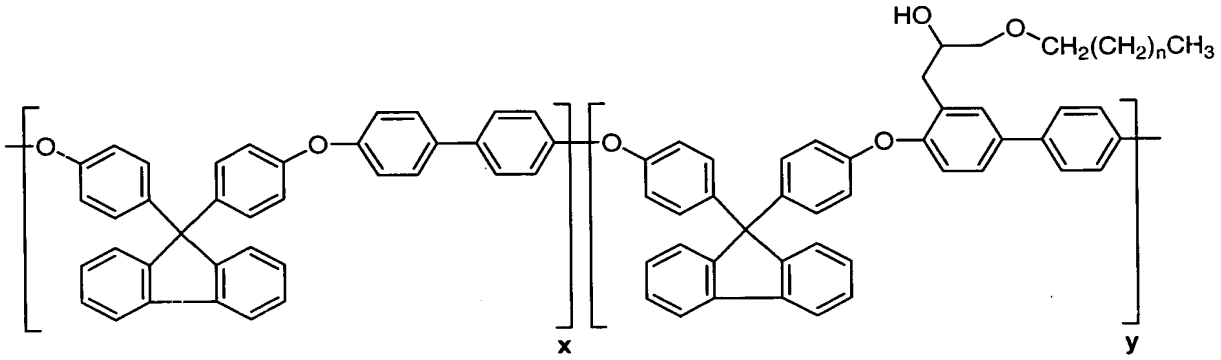
Where m and n are integers and m=4n+1



where y + z = 1 and y > 0.01



where x +y = 1.0 and y>0.01



where x +y = 1.0 and y>0.01.

13. The polymer of claim 5 in an electrically conductive adhesive.

14. The polymer of claim 13 in an integrated circuit.

15. A composition comprising the polymer of claim 1.

16. The composition of claim 15, further comprising a sufficient amount of conductive particles to render the composition suitable for use as an electrically conductive adhesive.

17. The composition of claim 16, wherein the electrically conductive particles comprise at least one metal selected from the group consisting of copper, silver, nickel, gold, platinum and tin-bismuth alloy.

18. The composition of claim 17, wherein each of the electrically conductive particles has a diameter less than 100 nm.

19. The composition of claim 16, wherein the electrically conductive particles comprise carbon nanotubes and carbon black.

20. The composition of claim 16, further comprising an adhesion promoter.

21. The composition of claim 16, further comprising a plasticizer.

22. The composition of claim 16, further comprising a chelating agent.

23. The composition of claim 16, further comprising an epoxy resin system.

24. The composition of claim 1, wherein the at least one hydroxyalkyl group is derived from an aliphatic aldehyde, an aliphatic ketone or an aliphatic glycidyl ether.

25. An adhesion method comprising applying the composition of claim 16 between a first substrate and a second substrate to adhere the first substrate to the second substrate.

26. An electronic package comprising the polymer of claim 1.

27. The electronic package of claim 26, wherein the polymer is contained in a thermally conductive adhesive.

28. The electronic package of claim 26, wherein the polymer is contained in a die attach adhesive.

29. The electronic package of claim 26, wherein the polymer is contained in an encapsulant.